SPECIES OF GREATEST CONSERVATION NEED

There are 127 SGCN (Appendix N), but conservation actions only were developed for 47 as they had a State Rank of S1 or S2. The latter includes 5 amphibians, 14 birds, 16 fish, 8 mammals, one mussel, and 3 reptiles. While these 47 species were chosen to focus conservation efforts, it is not implied that projects that address other SGCN (i.e., species with a State Rank of S3) are excluded.

The maps in this section were developed from the Montana Field Guide (MNHP and FWP 2013a) and the Point Observation Database. Please note that some species may have no or few observations identified. This may not be a true representation of them within Montana as the observations only may be incidental as no formal survey has ever been conducted.

INVERTEBRATES

The number of invertebrates in Montana is unknown, but likely to be in the thousands. Eighty-five are considered SOC (MNHP and FWP 2013b). This SWAP only reviewed 2 species groups for inclusion consideration, crayfish and mussels. FWP and most of the partner agencies and organizations do not have the ability, capacity, or funding to properly address invertebrates and include them in this SWAP. Because many of the conservation actions identified use a landscape or habitat approach, many of the SOC invertebrates will benefit from actions taken. A list of invertebrate SOC can be found in Appendix O.

Mussels

Western Pearlshell (*Margaritifera falcata*) State Rank: S2
Global Rank: G4G5

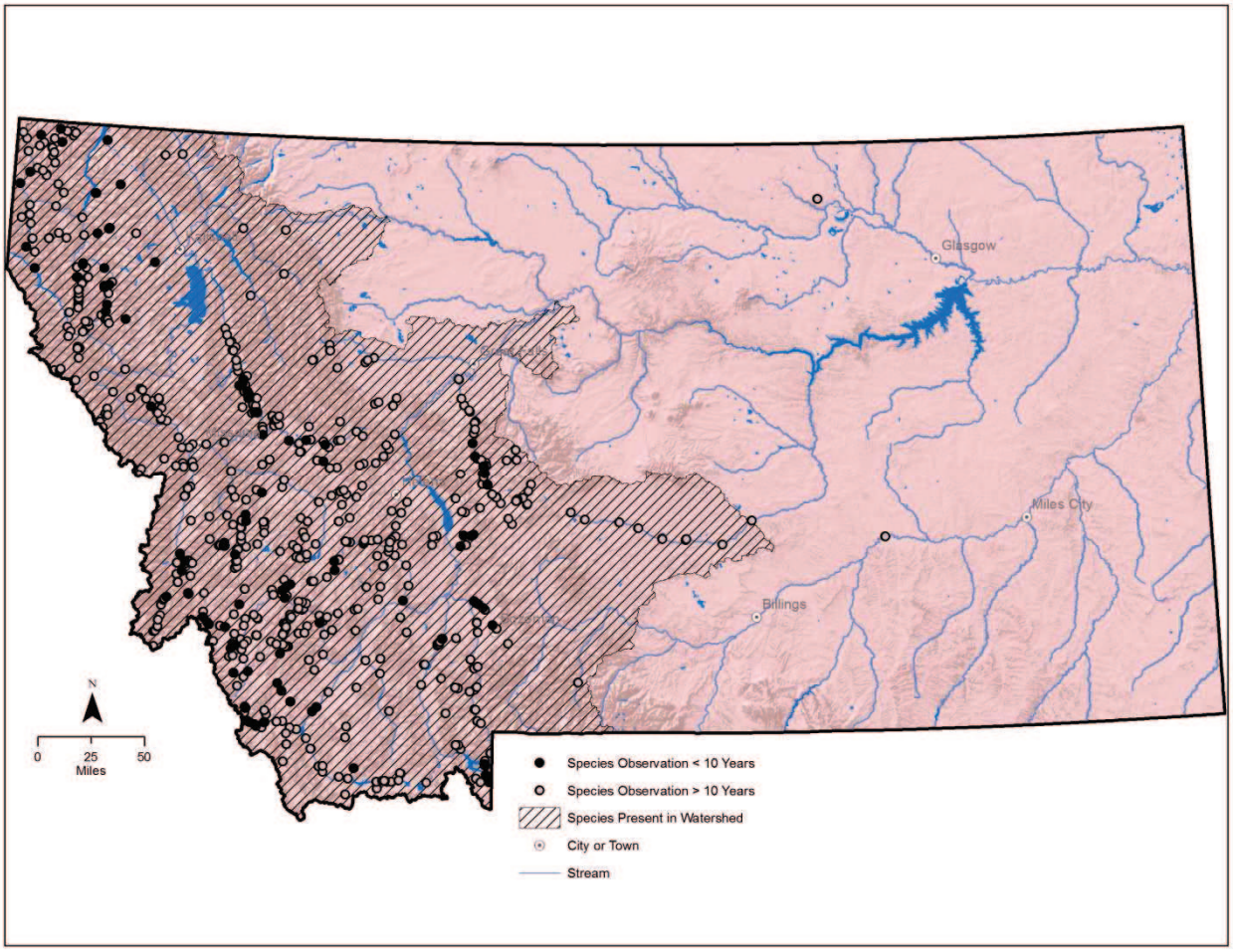

Figure 20. Montana range and observations of the western pearlshell

Habitat

The species is found in cool and cold running streams that generally have a low to moderate gradient and are wider than 6.6 feet; preferable habitat is stable sand or gravel substrates. It is found in hard as well as soft water. In large Idaho river systems (Salmon and Clearwater River Canyons), the western pearlshell, attains maximum density and age in river reaches where large boulders structurally stabilize cobbles and interstitial gravels. Boulders tend to prevent significant bed scour during major floods, and these boulder-sheltered mussel beds, although rare, may be critical for population recruitment elsewhere within the river, especially after periodic flood scour of less protected mussel habitat. In Idaho's Salmon and Snake River canyon, where reaches are aggrading with sand and gravel, the western pearlshell is being replaced by *Gonidea angulata*.

The normal fish hosts in the area are probably the *Oncorhynchus* species (e.g., Chinook salmon, WCT, steelhead), but *Salmo* and *Salvelinus* and even *Rhinicthys* and *Catostomus* (dace and suckers) are reported to be suitable. The western pearlshell likely crossed the divide with the

WCT, which is the native salmonid of the upper Missouri River drainage. This species occurs in sand, gravel, and even between cobbles and boulders.

Management

The western pearlshell has become a Sensitive Species for the USFS in 2010, and has been ranked at risk (S2) in Montana since 2008. Montana's populations have shown dramatic declines (Stagliano 2010) and were downgraded to S2 from S2S4 after more intensive sampling in 2007 and 2008 documented few viable populations in the state (Stagliano 2010). This species is widespread in geographic areas, but is declining in terms of area occupied and the number of sites with viable individuals; populations showing repeated reproduction (at least several age classes) are now the exception rather than the rule (Frest and Johannes 1995, Stagliano 2010). Individuals of this species can be quite long-lived and populations could exist undetected at low levels for many years without any reproduction.

Management Plan

None for western pearlshell, but documents with identified actions and strategies exist for host fish westslope cutthroat, Yellowstone cutthroat, and bull trout. In addition, a statewide fisheries management plan was developed for Montana, and actions identified within could help western pearlshells persist.

Western Pearlshell Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Habitat degradation and fragmentation (e.g., dams, stream channelization, diversions, dredging, and dewatering) Stream deterioration because of high sediment loads	Habitat degradation and fragmentation (e.g., dams, stream channelization, diversions, dredging, and dewatering) Stream deterioration because of high sediment loads	Support land use practices that encourage minimizing sedimentation from runoff (example, stream setbacks) Restoration of stream channels, streambanks, riparian areas to a condition that simulates their natural form and function
Invasive mussels, specifically zebra and quagga	Invasive mussels, specifically zebra and quagga	Follow guidance in *Montana's Aquatic Nuisance Species (ANS) Management Plan* (2002) and updates or revisions to the plan
No management plan	No management plan	Develop management plan or incorporate species recommendations into other management plans

Current Impacts	Future Threats	Conservation Actions
Point and nonpoint source pollution Reduced dissolved oxygen content in water	Point and nonpoint source pollution Reduced dissolved oxygen content in water	Enforcement of regulations that address the dumping of pollutants into waterways Work with agencies, organizations and the public to identify point source pollution that reduces dissolved oxygen contents in water
Threats to host fish also jeopardize mussel survival	Threats to host fish also jeopardize mussel survival	Restore connectivity of habitat and manage for healthy populations of native fish including cutthroat trout and bull trout
	Climate change	Encourage forest management practices that maintain healthy canopy cover over streams to stabilize temperature

Additional Citations

Frest, T. J. and E. J. Johannes. 1995. Freshwater Mollusks of the Upper Sacramento System, California, with Particular Reference to the Cantara Spill. 1994 Yearly report to California Department of Fish & Game. Deixis Consultants, Seattle, Washington. iii + 88 pp., appendices. Contract #FG2106R1.

Montana Aquatic Nuisance Species Technical Committee. 2002. Montana Aquatic Nuisance Species Management Plan Final. 148 pp.

Stagliano, David. 2010. Freshwater mussels in Montana: comprehensive results from 3 years of State Wildlife Grant funded surveys. Montana Natural Heritage Program, Helena, Montana. 75 pp.

VERTEBRATES

There are 528 vertebrate species that have been documented in Montana, of which 485 are native. Of the native species, there are 4 that have been extirpated and 195 are migratory and do not live in Montana year round. One hundred and forty-five accidental or rare visitors to Montana (all birds) were not included in the above numbers.

As of 13 December 2013, 126 SGCN were identified, and of those 46 have a state rank of S1 or S2. Conservation actions were developed only for those 46 SGCN. A few of those SGCN's, however, have ranges that barely cross into Montana. Though these species have been identified as SGCN, conservation efforts may be better focused elsewhere if there is no known significant threat to these species throughout the majority of their range outside of Montana.

There are 10 species on the SGCN list that are considered Species of Greatest Inventory Need (SGIN) as well. These species may be on the SGCN list because their Montana distribution, status, and threats are unknown. If a species below was identified as a SGIN, it is indicated under the common and scientific names.

Amphibians

Coeur d'Alene Salamander (*Plethodon idahoensis*) State Rank: S2
Species of Greatest Inventory Need Global Rank: G4

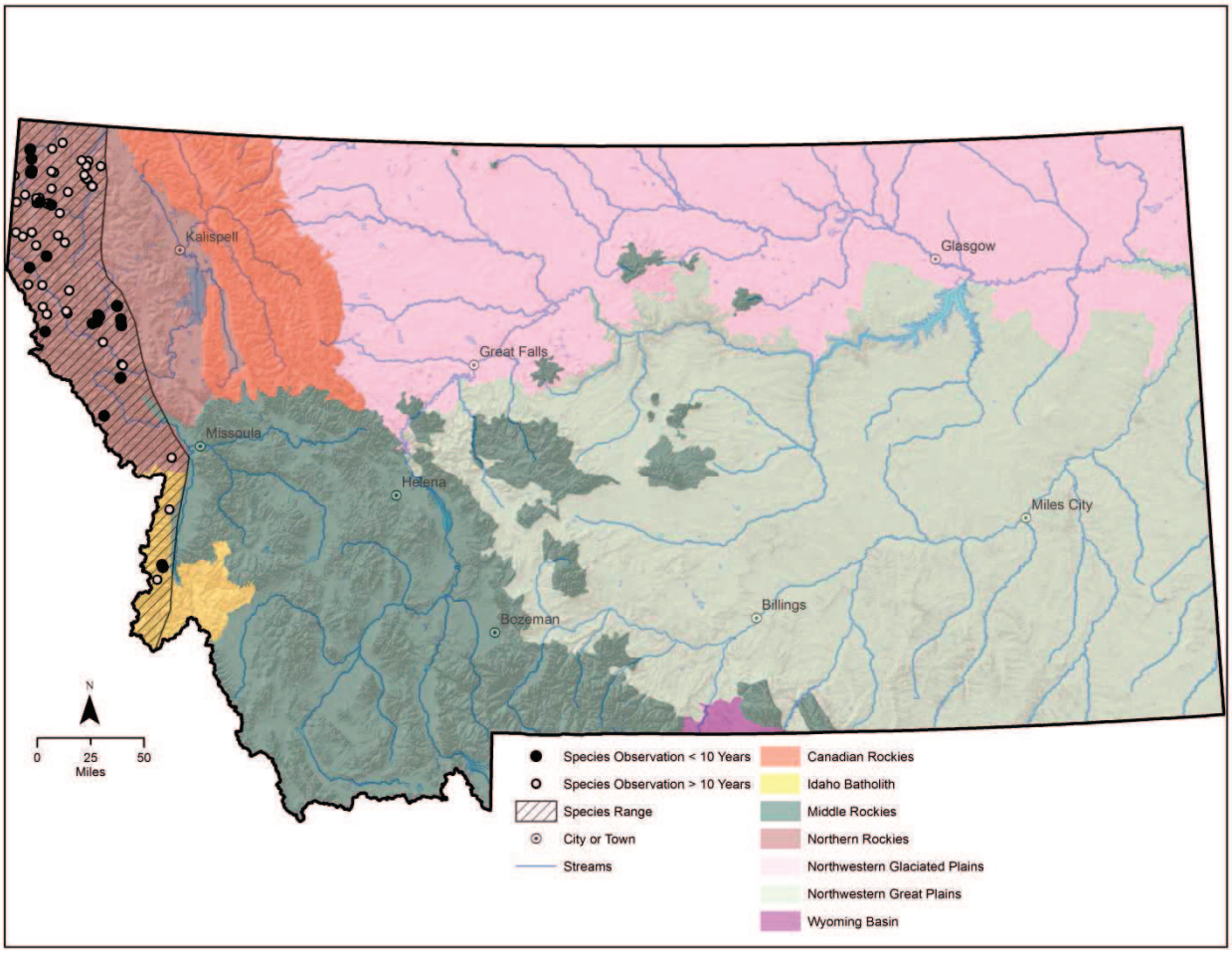

Figure 21. Montana range and observations of the Coeur d'Alene salamander

Habitat

The habitat for Coeur d'Alene salamanders includes the 3 major habitat categories: springs and seeps, waterfall spray zones, and stream edges (Wilson et al. 1988; Werner and Reichel 1994; Boundy 2001; Maxell 2002). Specific primary habitats are seeps and streamside talus, but they also inhabit talus far from free water (deep talus mixed with moist soil on well-shaded north-facing slopes). Coeur d'Alene salamander occurrences are generally located in coniferous forests, but are not restricted to a particular overstory species or aspect (Groves 1988, Groves et al. 1996). In wet weather, they are also found in leaf litter and under bark and logs in coniferous forests.

All plethodontid salamanders respire through their skin; terrestrial species lose water to the environment through evaporation and are therefore restricted to cool, damp environments. Coeur d'Alene salamanders are closely tied to water and are considered among the most aquatic plethodontids (Brodie and Storm 1970). Because they may live in the harshest climate of any

northwestern plethodontid (Nussbaum et al. 1983), they are highly dependent on the thermal and hydrologic stability provided by wet habitats in otherwise inhospitable surroundings.

Sites occupied by Coeur d'Alene salamanders in Montana have fractured rock formations present, and nearby habitats are typically forested (Reichel and Flath 1995). Foraging areas include seepage areas and splash zones with high humidity, high substrate moisture, and relatively high temperatures (Wilson and Larsen 1988). Shelter is provided by deep bedrock fractures or in talus habitat (Wilson and Larsen 1988). Montana populations are found primarily in talus areas along splash zones of creeks, or with seeps running through (Teberg 1963, 1965; Wilson and Larsen 1988). Idaho and Montana populations breed in both spring and fall, although most eggs usually are laid in the spring. Eggs are laid in moist, concealed places on land (Stebbins 1985) far down in the rocks (Werner and Reichel 1994).

Management

Potential threats for the species across its global range also apply to Montana populations, but population declines or extinctions have not yet been documented here. Some populations continue to be vulnerable to highway construction activity, and most populations occur at elevations and in forest types where timber harvest is a common activity. Routine monitoring (Groves et al. 1996) of known populations should be conducted to identify threats to each, as well as to determine their continued viability.

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Coeur d'Alene Salamander Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Data poor Outdated survey		Conduct monitoring program to establish long-term trends of abundance and distribution of populations Routine monitoring of known populations Target species for survey and inventory
Disease and parasites	Disease and parasites	Prevent spread of chytrid fungus by following process described in Maxell et al. (2004)

Current Impacts	Future Threats	Conservation Actions
Mining	Mining	Keep new mining tailings out of drainages Reclaim streams impacted by dredge mining Work with companies to minimize mining impacts in occupied streams
Non-native species	Non-native species	Avoid stocking non-native fish in nearby waters Coordinate closely with fisheries conservation efforts in these areas
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Restricted mobility coupled with increasing habitat fragmentation make the Coeur d'Alene salamander susceptible to local extirpation	Restricted mobility coupled with increasing habitat fragmentation make the Coeur d'Alene salamander susceptible to local extirpation	Conduct surveys of potential habitats for the Coeur d'Alene salamander Replace culverts with bridges when possible Work with private landowners and land management agencies to conserve habitat through proper management of development, logging, and chemical applications
Road construction	Road construction	Minimize road construction upstream or within 300 feet of known salamander sites Survey drainages for salamanders or habitat prior to new road construction
Forest management	Forest management	Work with landowners and land management agencies to limit activities that may be detrimental to this species

Current Impacts	Future Threats	Conservation Actions
	Climate change	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routine monitoring of known populations

Additional Citations

Boundy, J. 2001. Herpetofaunal surveys in the Clark Fork Valley region, Montana. Herpetological Natural History 8: 15-26.

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Groves, C. R. 1988. Status and distribution of the Coeur d' Alene salamander (*Plethodon vandykei idahoensis*) in Idaho. Idaho Department of Fish and Game, Boise, Idaho. 39 pp.

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Maxell, B. A. 2002. Database file of herpetological observations from 2001.

Maxell, B. A., G. Hokit, J. Miller, and K. Werner. 2004. Detection of (*Batrachochytrium dendrobatidis*), the Chytrid Fungus Associated with Global Amphibian Declines, in Montana Amphibians. PowerPoint presentation.

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Reichel, J. D., and D. Flath. 1995. Identification of Montana's amphibians and reptiles. Montana Outdoors 26:15–34.

Stebbins, R. C. 1985. Peterson Field Guides: Western Reptiles and Amphibians. Houghton Mifflin Company, Boston, Massachusetts.

Teberg, E. K. 1963. An extension into Montana of the known range of the salamander *Plethodon vandykei idahoensis*. Herpetologica 19:287.

Teberg, E. K. 1965. Range extensions of the salamander *Plethodon vandykei idahoensis*. Copeia 1965:244.

Werner, J. K., and J. D. Reichel. 1994. Amphibian and reptile survey of the Kootenai National Forest: 1994. Montana Natural Heritage Program, Helena, Montana. 105 pp.

Wilson, A. G. Jr. and J. H. Larsen Jr. 1988. Activity and diet in seepage-dwelling Coeur d'Alene salamanders (*Plethodon vandykei idahoensis*). Northwest Science 62(5): 211-217.

Great Plains Toad (*Anaxyrus cognatus*)

State Rank: S2
Global Rank: G5

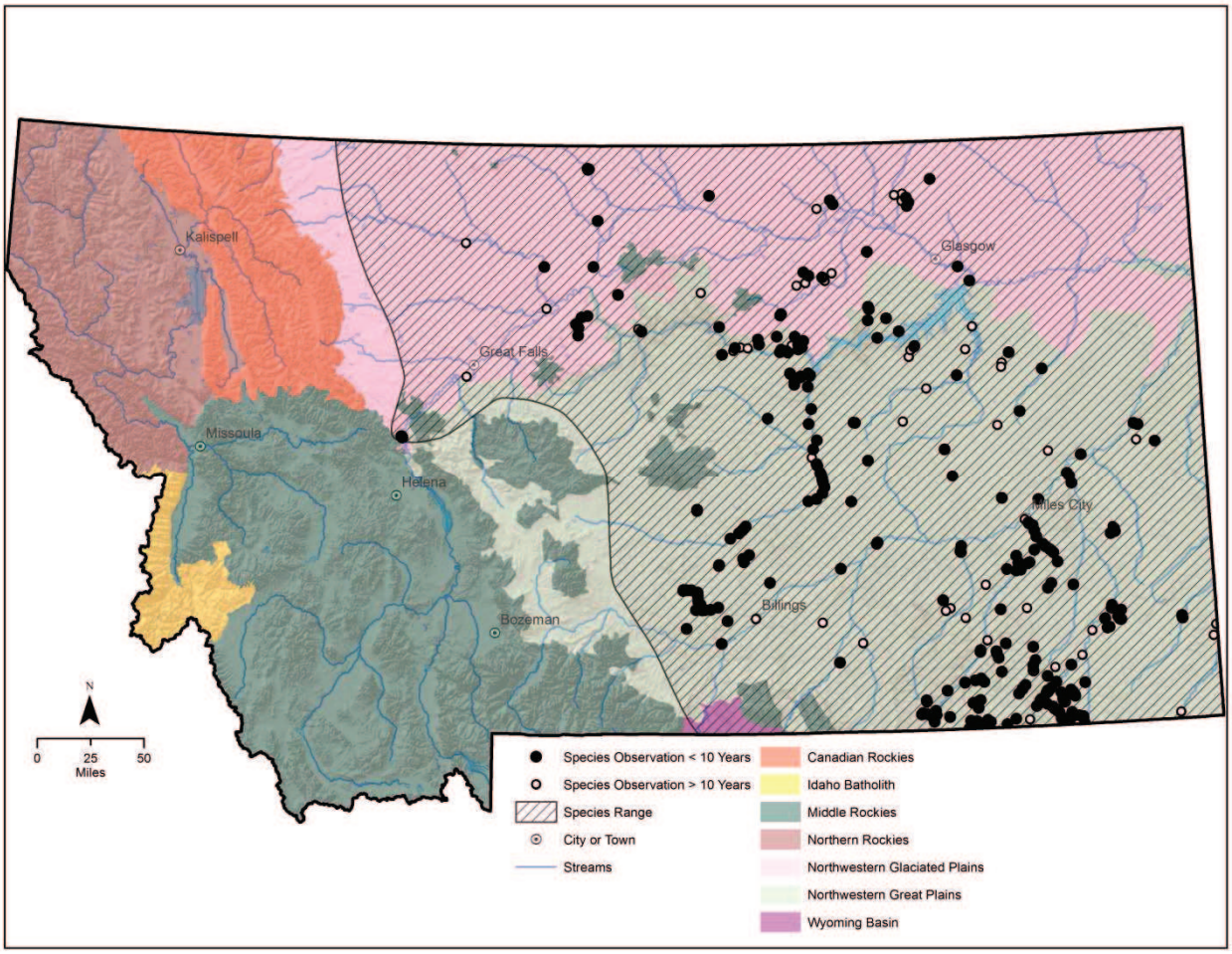

Figure 22. Montana range and observations of the Great Plains toad

Habitat

Little specific information on the habitat of Great Plains toad is available. It has been reported from sagebrush-grassland, rainwater pools in road ruts, in stream valleys, at small reservoirs and stock ponds, and around rural farms. Breeding has been documented in small reservoirs and backwater sites along streams (Mosimann and Rabb 1952, Dood 1980, Hendricks 1999).

Information gathered from other locations indicates that when inactive, the Great Plains toad is found in burrows, and under rocks or wood. During the active season, it occupies burrows during the day that are quite shallow. This species enters water only to breed. It breeds in rain pools, flooded areas, and ponds and reservoirs that fluctuate in size, and appears to prefer stock tanks and roadside ponds rather than floodplains (Baxter and Stone 1985). Eggs and larvae develop in shallow water, usually clear or slightly turbid, but not muddy.

Management

No special management needs are currently recognized. However, at permanent and semi-permanent water bodies (reservoirs and stock ponds) where breeding has been observed, portions

of the shoreline with emergent vegetation could be fenced to create exclosures that protect breeding adults, eggs and tadpoles from trampling and the removal of emergent cover by livestock. Another option would be the creation of ponds designed for use by prairie amphibians as breeding sites, with the perimeter surrounded by fencing to prevent access by livestock. Game fish should not be introduced to any of these ponds.

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Great Plains Toad Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Breeding site destruction	Breeding site destruction	Protect certain wetlands occupied by great plains toads from introduced species and human disturbance Manage livestock access to known breeding sites within grazing allotments Survey road ditches for tadpoles before any blading of ditches in June/July Survey wetlands suitable for great plains toads
Disease and parasites	Disease and parasites	To prevent spread of chytrid fungus, personnel working in either lentic or lotic systems should thoroughly rinse and decontaminate all equipment as described in Maxell et al. (2004)
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands

Additional Citations

Baxter, G. T., and M. D. Stone. 1985. Amphibians and reptiles of Wyoming, second edition. Wyoming Game and Fish Department. Cheyenne, Wyoming.

Dood, A. R. 1980. Terry Badlands nongame survey and inventory final report. Montana Department of Fish, Wildlife & Parks and Bureau of Land Management, Helena, Montana. 70 pp.

Hendricks, P. 1999. Amphibian and reptile survey of the Bureau of Land Management Miles City District, Montana. Montana Natural Heritage Program, Helena, Montana. 80 p.

Hendricks, P. 1999. Amphibian and reptile surveys on Montana refuges: 1998-1999. Montana Natural Heritage Program, Helena, Montana. 22pp.

Maxell, B. A., G. Hokit, J. Miller, and K. Werner. 2004. Detection of (*Batrachochytrium dendrobatidis*), the Chytrid Fungus Associated with Global Amphibian Declines, in Montana Amphibians. PowerPoint presentation.

Mosimann, J. E. and G. B. Rabb. 1952. The herpetology of Tiber Reservoir Area, Montana. Copeia 1952: 23-27.

Idaho Giant Salamander (*Dicamptodon aterrimus*) State Rank: S2
Global Rank: G3

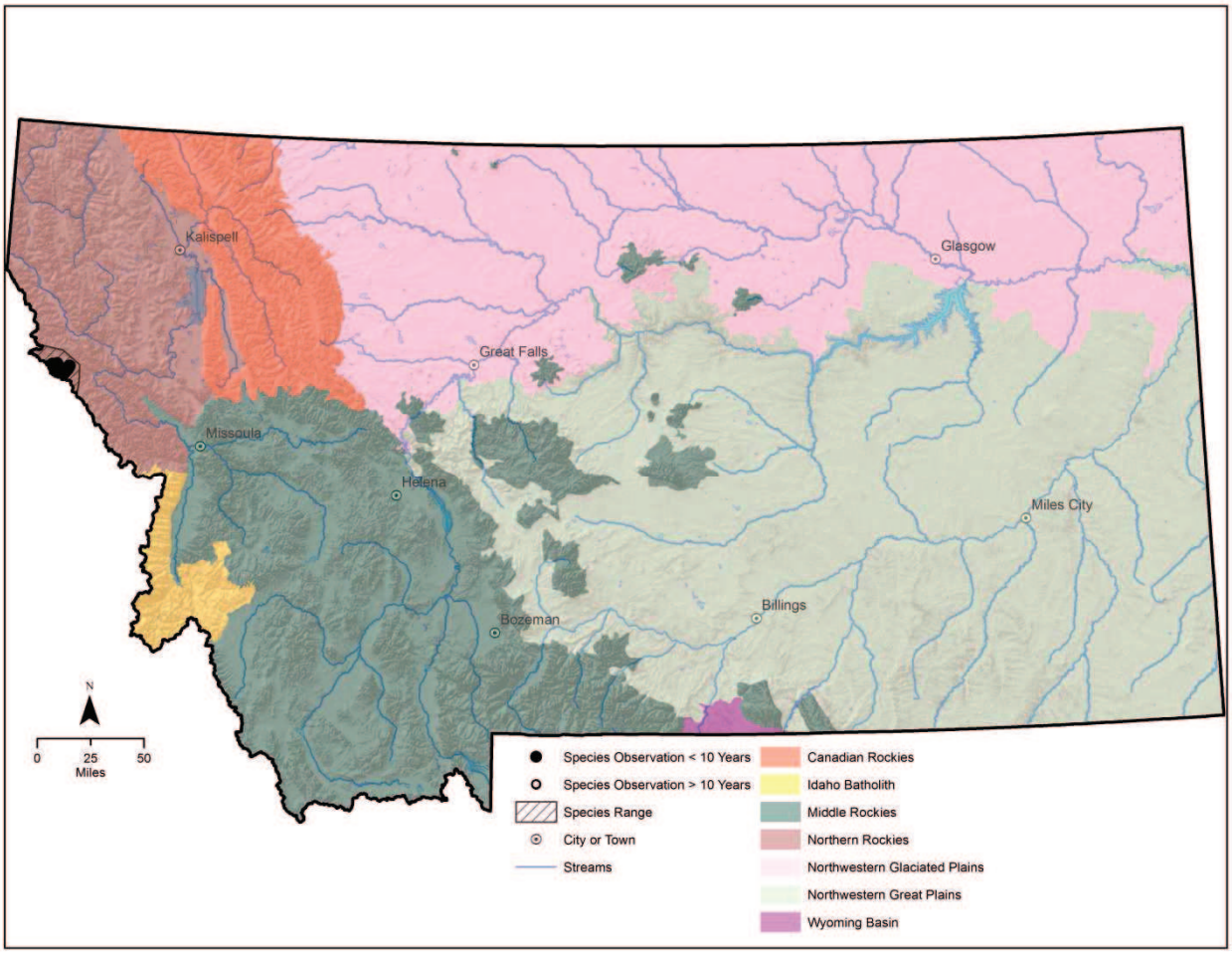

Figure 23. Montana range and observations of the Idaho giant salamander

Habitat

Known to occur up to 7,100 feet in elevation (Nussbaum et al. 1983). Transformed adults, although seldom seen, inhabit moist coniferous forests where they may be found under logs, bark, or rocks. They are most active on warm, rainy nights. Larvae are usually found in swift, cold mountain streams, but may occasionally be found in lakes or ponds (Reichel and Flath 1995).

Management

Potential threats for the species across its global range probably apply also to Montana populations. Population declines or extinctions have not yet been documented, in part because the species was documented in Montana only once prior to 2005. All records are from headwaters streams and lake outlets in Mineral County. Range likely reduced during the last century from logging of mature and old-growth forest types, wildland fire, road building, and placer mining. Routine monitoring of known populations should be conducted to identify threats to each, as well as to determine their continued viability. Additional stream surveys are desirable

to determine connectivity with adjacent Idaho populations, especially between Thompson Falls and Lolo Pass (Maxell et al. 2009).

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Idaho Giant Salamander Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Disease and parasites	Disease and parasites	To prevent spread of chytrid fungus, personnel working in either lentic or lotic systems should thoroughly rinse and decontaminate all equipment as described in Maxell et al. (2004)
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Restricted mobility coupled with increasing habitat fragmentation makes this species susceptible to local extirpation	Restricted mobility coupled with increasing habitat fragmentation makes this species susceptible to local extirpation	Conduct surveys of potential habitats for the Idaho giant salamander Replace culverts with bridges when possible Work with Idaho to maintain connectivity with populations across the state line Work with private landowners and land management agencies to conserve habitat through proper management of development, logging, and chemical applications

Current Impacts	Future Threats	Conservation Actions
Road construction	Road construction	Minimize road construction upstream or within 300 feet of known salamander sites Survey drainages for salamanders or habitat prior to new road construction
Forest management	Forest management	Work with landowners and land management agencies to limit activities that may be detrimental to this species
	Climate change	Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary Routine monitoring of known populations
	Mining	Keep new mining tailings out of drainages Reclaim streams impacted by dredge mining Work with companies to minimize mining impacts in occupied streams
	Non-native species	Coordinate closely with fisheries conservation efforts in these areas Monitor streams for non-native species, and install barriers if feasible to prevent spread into headwater areas

Additional Citations

Maxell, B.A., P. Hendricks, M.T. Gates, and S. Lenard. 2009. Status and Conservation of Montana's Amphibians and Reptiles: summaries of distribution and habitat use, review of risk factors, species accounts, bibliographies for individual species, research and management suggestions, and a summary of lentic breeding amphibian surveys. Report to Montana Department of Fish, Wildlife & Parks, Region One Office of the U.S. Forest Service, Montana Department of Environmental Quality, and USGS Northern Rocky Mountain Science Center. Montana Natural Heritage Program, Helena, Montana and Montana Cooperative Wildlife Research Unit and Wildlife Biology Program, University of Montana, Missoula, Montana. 554 p. plus appendices.

Maxell, B. A., G. Hokit, J. Miller, and K. Werner. 2004. Detection of (*Batrachochytrium dendrobatidis*), the Chytrid Fungus Associated with Global Amphibian Declines, in Montana Amphibians. PowerPoint presentation.

Nussbaum, R. A., E. D. Brodie, Jr., and R. M. Storm. 1983. Amphibians and reptiles of the Pacific Northwest. University of Idaho Press. Moscow, Idaho. 332 pp.

Reichel, J. and D. Flath. 1995. Identification of Montana's amphibians and reptiles. Montana Outdoors 26(3):15-34.

Northern Leopard Frog (*Rana pipiens*) State Rank: S1, S4
Global Rank: G5

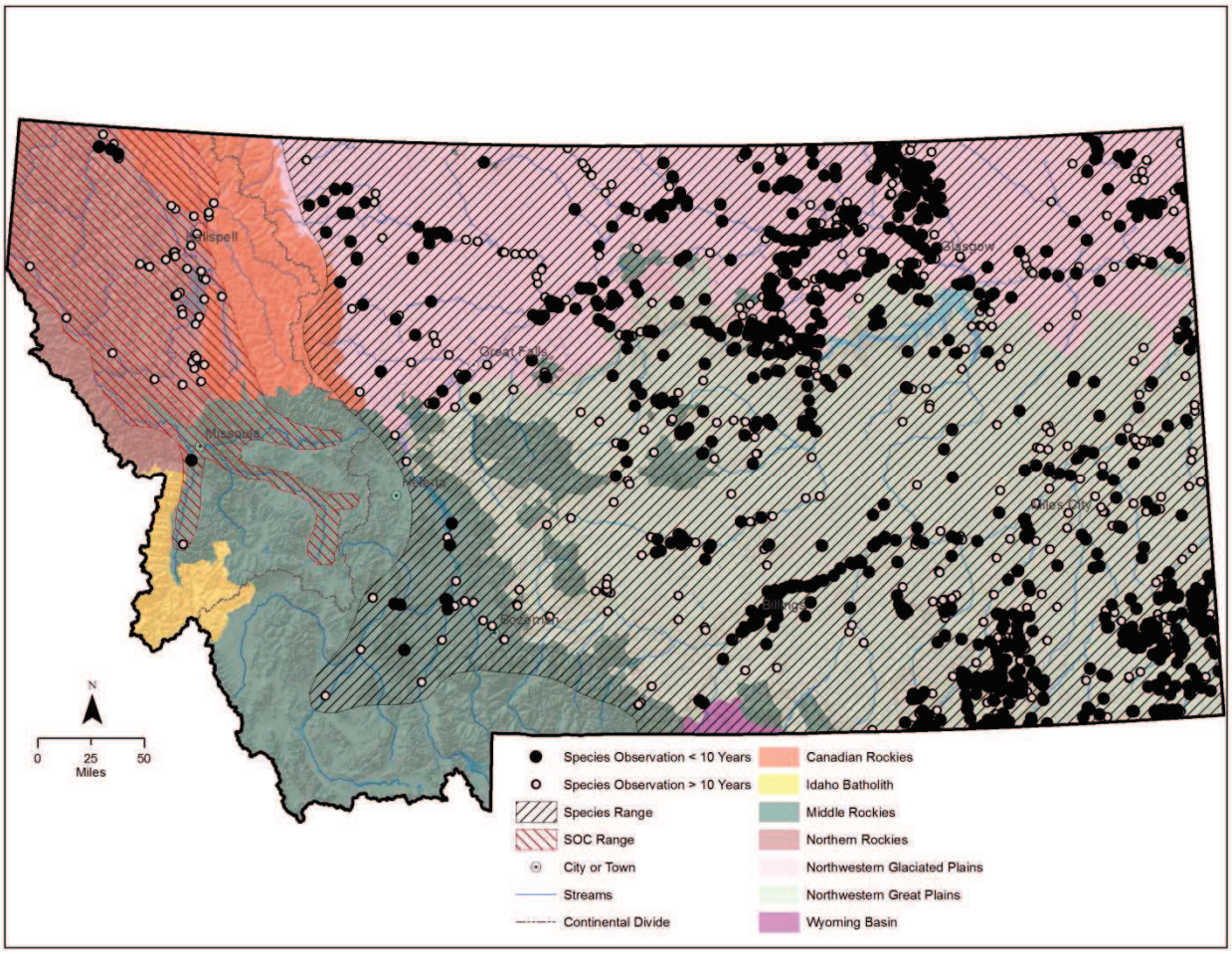

Figure 24. Montana range and observations of the northern leopard frog

Habitat

Habitats used by northern leopard frogs in Montana include low-elevation and valley bottom ponds, spillway ponds, beaver ponds, stock reservoirs, lakes, creeks, pools in intermittent streams, warm water springs, potholes, and marshes (Brunson and Demaree 1951; Mosimann and Rabb 1952; Black 1969; Miller 1978; Dood 1980; Reichel 1995; Hendricks and Reichel 1996; Hendricks 1999).

Northern leopard frogs require a mosaic of habitats to meet annual requirements of all life stages. They occupy a variety of wetland habitats of relatively fresh water with moderate salinity, including springs, slow streams, marshes, bogs, ponds, canals, floodplains, beaver ponds, reservoirs, and lakes, usually in permanent water with rooted aquatic vegetation. Adults and juveniles commonly feed in open or semi-open wet meadows and fields with shorter vegetation, usually near the margins of water bodies where there is permanent water and growth of cattails or other aquatic vegetation, yet they may forage far from water in damp meadows (Stebbins 1985). They seek cover underwater and seem to avoid denser vegetation.

This species is abundant on plains near permanent water (Black 1969; Mosimann and Rabb 1952), tends to avoid tall, dense grass areas (Miller 1978), and prefers densely vegetated areas such as wet sedge meadows or cattail marshes (Reichel and Flath 1995; Werner and Reichel 1994).

Management
No special management needs are currently recognized for populations in eastern Montana. Any populations discovered in the western region should be reported to the native species biologist of FWP or the program zoologist of MNHP.

Management Plan
Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Northern Leopard Frog Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Disease and parasites	Disease and parasites	To prevent spread of chytrid fungus, personnel working in either lentic or lotic systems should thoroughly rinse and decontaminate all equipment as described in Maxell et al. (2004)
Global change (climatic and atmospheric changes such as increased UV-B radiation, pollution, acid rain, and disease)	Climate change	Begin monitoring program to establish long-term trends of abundance and distribution of populations Continue to evaluate current climate science models and recommended actions Monitor habitat changes and address climate impacts through adaptive management as necessary
Loss of wetlands and hydrological regimes	Loss of wetlands and hydrological regimes	Support habitat conservation and improvement projects Work with landowners and land management agencies to limit activities that may be detrimental to this species and wetlands

Current Impacts	Future Threats	Conservation Actions
Non-native species (e.g., game fish, mosquitofish, bullfrogs)	Non-native species (e.g., game fish, mosquitofish, bullfrogs)	Allow no introduction of game fish or bullfrogs into waters with known breeding sites Coordinate closely with fisheries conservation efforts in these areas Remove bullfrogs from isolated wetlands with northern leopard frog habitat Suppress the spread of bullfrogs
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Range contraction: this species has nearly vanished on western side of Continental Divide in Montana	Range contraction: this species has nearly vanished on western side of Continental Divide in Montana	Protect the 2 remaining breeding populations west of the Continental Divide in Montana Survey western Montana to locate additional populations Monitor historical breeding sites and populations Support ongoing reintroduction efforts
Unsustainable use and illegal collecting	Unsustainable use and illegal collecting	Increase education and information on amphibian biology and awareness of the importance of breeding sites

Additional Citations

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Reichel, J. D. 1995. Preliminary amphibian and reptile survey of the Lewis and Clark National Forest: 1994. March 1995.

Reichel, J. D., and D. Flath. 1995. Identification of Montana's amphibians and reptiles. Montana Outdoors 26:15–34.

Stebbins, R. C. 1985. Peterson Field Guides: Western Reptiles and Amphibians. Houghton Mifflin Company, Boston, Massachusetts.

Werner, J. K., and J. D. Reichel. 1994. Amphibian and reptile survey of the Kootenai National Forest: 1994. Montana Natural Heritage Program, Helena, Montana. 105 pp.

Western Toad (*Bufo boreas*)

State Rank: S2
Global Rank: G4

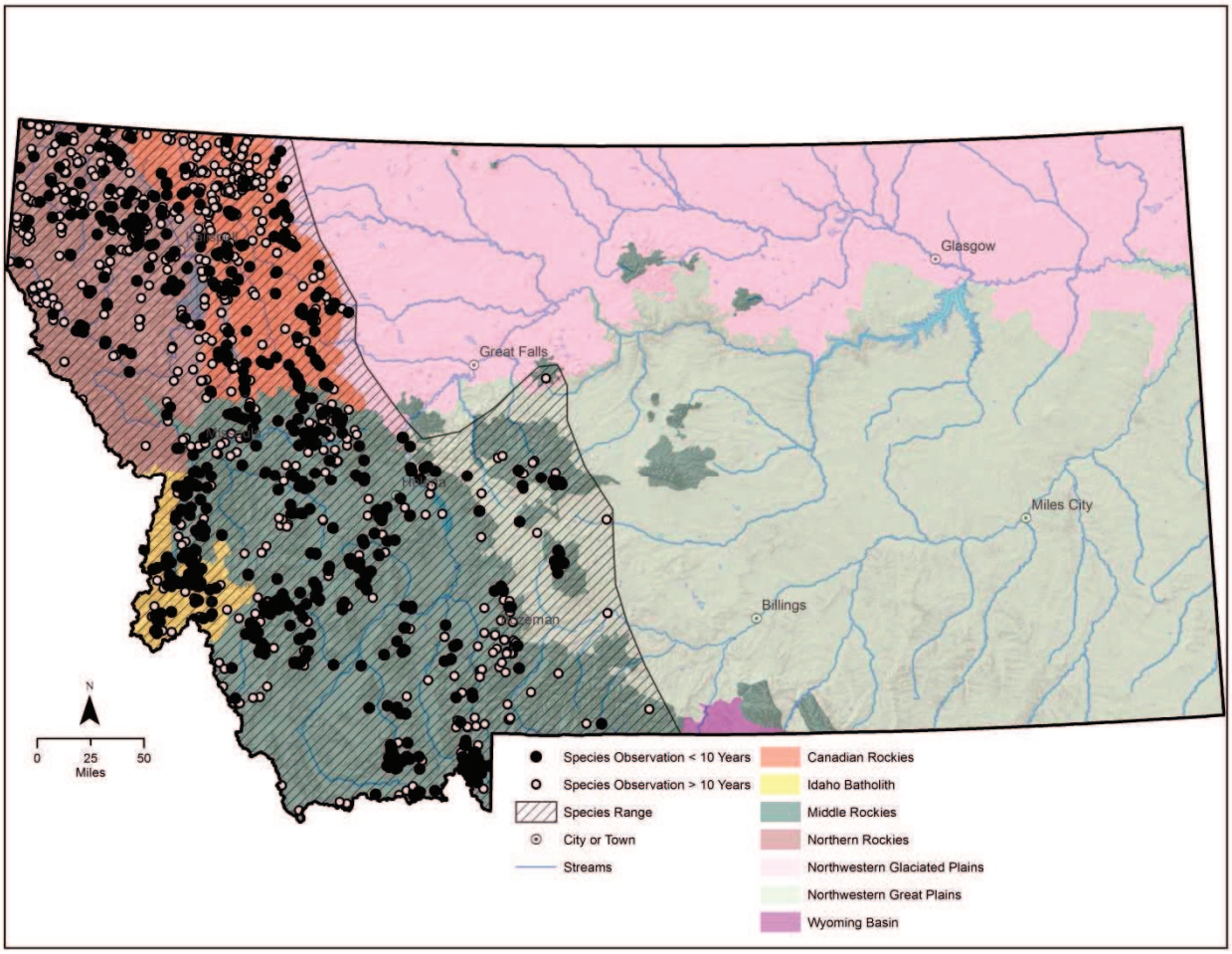

Figure 25. Montana range and observations of the western toad

Habitat

Habitats used by western toads in Montana are similar to those reported for other regions and range from low-elevation beaver ponds, reservoirs, streams, marshes, lake shores, potholes, wet meadows, and marshes to high-elevation ponds, fens, and tarns at or near tree line (Rodgers and Jellison 1942; Brunson and Demaree 1951; Miller 1978; Marnell 1997; Werner et al. 1998; Boundy 2001). Forest cover in or near encounter sites is often unreported, but toads have been noted in open-canopy ponderosa pine woodlands and closed-canopy dry conifer forests in Sanders County (Boundy 2001), willow wetland thickets and aspen stands bordering Engelmann spruce stands in Beaverhead County (Jean et al. 2002), and mixed ponderosa pine/cottonwood/willow sites or Douglas-fir/ponderosa pine forests in Ravalli and Missoula counties.

Elsewhere the western toad is known to utilize a wide variety of habitats, including desert springs and streams, meadows and woodlands, mountain wetlands, beaver ponds, marshes, ditches, and backwater channels of rivers where they prefer shallow areas with mud bottoms (Nussbaum et al. 1983; Baxter and Stone 1985; Russell and Bauer 1993; Koch and Peterson

1995; Hammerson 1999). Forest cover around occupied montane wetlands may include aspen, Douglas-fir, lodgepole pine, Engelmann spruce, and subalpine fir; in local situations western toads may also be found in ponderosa pine forest. They also occur in urban settings, sometimes congregating under streetlights at night to feed on insects (Hammerson 1999). Normally they remain fairly close to ponds, lakes, reservoirs, and slow-moving rivers and streams during the day, but may range widely at night. Eggs and larvae develop in still, shallow areas of ponds, lakes, or reservoirs or in pools of slow-moving streams, often where there is sparse emergent vegetation. Adult and juvenile western toads dig burrows in loose soil, use burrows of small mammals, or occupy shallow shelters under logs or rocks. At least some toads overwinter in terrestrial burrows or cavities, apparently where conditions prevent freezing (Nussbaum et al. 1983; Koch and Peterson 1995; Hammerson 1999).

Management

In previous decades the western toad was considered the most abundant amphibian of the western third of the state (Rodgers and Jellison 1942; Brunson 1952; Maxell et al. 2003), and although still encountered widely and frequently though by no means commonly, it is no longer ranked as the most abundant amphibian. Numerous surveys since the early 1990s indicate that this species has experienced regional population declines in the state. Western toads were documented to breed at only 2-5% of more than 2,000 standing water bodies surveyed since 1997, and where breeding was documented, fewer than 10 breeding females contributed in a given year (Maxell 2000; Maxell et al. 2003). Rangewide declines in this species have been indicated in Montana as well as in other western states.

Management Plan

Maxell, B. A. 2000. Management of Montana's Amphibians: A Review of Factors that may Present a Risk to Population Viability and Accounts on the Identification, Distribution, Taxonomy, Habitat Use, Natural History and the Status and Conservation of Individual Species. U.S. Forest Service, Missoula, Montana. 161 pp.

Western Toad Current Impacts, Future Threats, and Conservation Actions

Current Impacts	Future Threats	Conservation Actions
Breeding site destruction	Breeding site destruction	Explore using beaver in areas where they historically occupied to provide additional breeding sites for the western toad; follow FWP's existing protocol on translocation Manage livestock access to known breeding sites within grazing allotments Protect certain wetlands occupied by western toads from introduced species and human disturbance Support habitat conservation and

Current Impacts	Future Threats	Conservation Actions
		improvement projects Survey road ditches for tadpoles before any blading of ditches in June/July Survey wetlands suitable for western toads
Connectivity	Connectivity	Explore installation of underpasses to access breeding areas
Disease and parasites	Disease and parasites	To prevent spread of chytrid fungus, personnel working in either lentic or lotic systems should thoroughly rinse and decontaminate all equipment as described in Maxell et al. (2004)
Pollution	Pollution	Minimize pesticide use upstream from occupied areas Regulate chemical application (e.g., herbicides, pesticides, fertilizers) within 300 feet of water bodies or wetlands
Predation increase by species attracted to human disturbance	Predation increase by species attracted to human disturbance	Appropriate conservation action(s) unknown

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